

**Proposed Amendment To The Water Quality Control Plan – Los Angeles
Region With Respect To The Early Life Stage Implementation Provision Of
The Inland Surface Water Ammonia Objectives For Freshwaters**

Amendment:

Chapter 3. Water Quality Objectives

Ammonia

[Changes begin with third paragraph under “Ammonia” and are shown in underline/strikeout text.]

The one-hour average objective is dependent on pH and fish species (salmonids present or absent), but not temperature. It is assumed that salmonids may be present in waters designated in the Basin Plan as "COLD" or "MIGR" and that salmonids are absent in waters not designated in the Basin Plan as "COLD" or "MIGR," in the absence of additional information to the contrary. The 30-day average objective is dependent on pH and temperature. At lower temperatures, the 30-day average objective also is dependent on the presence or absence of early life stages of fish (ELS). The methodology employed to implement the ELS provision is specified in subparagraph 3 to the section entitled "Implementation" appearing later in this description of the water quality objectives for ammonia. ~~Water bodies with a Basin Plan designation of "SPWN" support high quality aquatic habitats suitable for reproduction and early development of fish and, therefore, these water bodies are designated as ELS present waters.~~ The four-day average objective is 2.5 times the 30-day average objective.

**Table 3-2. 30-day Average Objective for Ammonia-N for Freshwaters where Early Life Stages of Fish are Present
Designated SPWN (mg N/L)**

pH	Temperature, °C																
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
6.5	6.67	6.46	6.06	5.68	5.33	4.99	4.68	4.39	4.12	3.86	3.62	3.39	3.18	2.98	2.80	2.62	2.46
6.6	6.57	6.36	5.97	5.59	5.25	4.92	4.61	4.32	4.05	3.80	3.56	3.34	3.13	2.94	2.75	2.58	2.42
6.7	6.44	6.25	5.86	5.49	5.15	4.83	4.52	4.24	3.98	3.73	3.50	3.28	3.07	2.88	2.70	2.53	2.37
6.8	6.29	6.10	5.72	5.36	5.03	4.72	4.42	4.14	3.89	3.64	3.42	3.20	3.00	2.82	2.64	2.47	2.32
6.9	6.12	5.93	5.56	5.21	4.89	4.58	4.30	4.03	3.78	3.54	3.32	3.11	2.92	2.74	2.57	2.41	2.25
7.0	5.91	5.73	5.37	5.04	4.72	4.43	4.15	3.89	3.65	3.42	3.21	3.01	2.82	2.64	2.48	2.32	2.18
7.1	5.67	5.49	5.15	4.83	4.53	4.25	3.98	3.73	3.50	3.28	3.08	2.88	2.70	2.53	2.38	2.23	2.09
7.2	5.39	5.22	4.90	4.59	4.31	4.04	3.78	3.55	3.33	3.12	2.92	2.74	2.57	2.41	2.26	2.12	1.99
7.3	5.08	4.92	4.61	4.33	4.06	3.80	3.57	3.34	3.13	2.94	2.76	2.58	2.42	2.27	2.13	2.00	1.87
7.4	4.73	4.59	4.30	4.03	3.78	3.55	3.32	3.12	2.92	2.74	2.57	2.41	2.26	2.12	1.98	1.86	1.74
7.5	4.36	4.23	3.97	3.72	3.49	3.27	3.06	2.87	2.69	2.53	2.37	2.22	2.08	1.95	1.83	1.72	1.61
7.6	3.98	3.85	3.61	3.39	3.18	2.98	2.79	2.62	2.45	2.30	2.16	2.02	1.90	1.78	1.67	1.56	1.47
7.7	3.58	3.47	3.25	3.05	2.86	2.68	2.51	2.36	2.21	2.07	1.94	1.82	1.71	1.60	1.50	1.41	1.32
7.8	3.18	3.09	2.89	2.71	2.54	2.38	2.23	2.10	1.96	1.84	1.73	1.62	1.52	1.42	1.33	1.25	1.17
7.9	2.80	2.71	2.54	2.38	2.24	2.10	1.96	1.84	1.73	1.62	1.52	1.42	1.33	1.25	1.17	1.10	1.03
8.0	2.43	2.36	2.21	2.07	1.94	1.82	1.71	1.60	1.50	1.41	1.32	1.24	1.16	1.09	1.02	0.957	0.897
8.1	2.10	2.03	1.91	1.79	1.68	1.57	1.47	1.38	1.29	1.21	1.14	1.07	1.00	0.938	0.879	0.824	0.773
8.2	1.79	1.74	1.63	1.53	1.43	1.34	1.26	1.18	1.11	1.04	0.973	0.912	0.855	0.802	0.752	0.705	0.661
8.3	1.52	1.48	1.39	1.30	1.22	1.14	1.07	1.00	0.941	0.882	0.827	0.775	0.727	0.682	0.639	0.599	0.562
8.4	1.29	1.25	1.17	1.10	1.03	0.966	0.906	0.849	0.796	0.747	0.700	0.656	0.615	0.577	0.541	0.507	0.475
8.5	1.09	1.06	0.990	0.928	0.870	0.816	0.765	0.717	0.672	0.630	0.591	0.554	0.520	0.487	0.457	0.428	0.401
8.6	0.920	0.892	0.836	0.784	0.735	0.689	0.646	0.606	0.568	0.532	0.499	0.468	0.439	0.411	0.386	0.362	0.339
8.7	0.778	0.754	0.707	0.663	0.622	0.583	0.547	0.512	0.480	0.450	0.422	0.396	0.371	0.348	0.326	0.306	0.287
8.8	0.661	0.641	0.601	0.563	0.528	0.495	0.464	0.435	0.408	0.383	0.359	0.336	0.315	0.296	0.277	0.260	0.244
8.9	0.565	0.548	0.513	0.481	0.451	0.423	0.397	0.372	0.349	0.327	0.306	0.287	0.269	0.253	0.237	0.222	0.208
9.0	0.486	0.471	0.442	0.414	0.389	0.364	0.342	0.320	0.300	0.281	0.264	0.247	0.232	0.217	0.204	0.191	0.179

* At temperatures below 14 °C, the objective is the same as that shown for 14 °C.

Reference: U.S. EPA 1999 Update of Ambient Water Quality Criteria for Ammonia¹

¹ For freshwaters ~~where early life stages of fish (ELS) are present~~ ~~designated SPWN~~, the thirty-day average concentration of total ammonia as nitrogen (in mg N/L) shall not exceed the values described by the following equation.

$$\text{30-day Average Concentration} = \left(\frac{0.0577}{1 + 10^{7.688 - pH}} + \frac{2.487}{1 + 10^{pH - 7.688}} \right) * \text{MIN} \left(2.85, 1.45 * 10^{0.028 * (25 - T)} \right)$$

Where T = temperature expressed in °C.

In addition, for freshwaters, the highest four-day average within the 30-day period shall not exceed 2.5 times the 30-day average objective as calculated above.

Table 3-3. 30-day Average Objective for Ammonia-N for Freshwaters where Early Life Stages of Fish are Absent ~~Not Designated SPWN~~ (mg N/L)

pH	Temperature, °C								
	0-7	8	9	10	11	12	13	14	15*
6.5	10.8	10.1	9.51	8.92	8.36	7.84	7.35	6.89	6.46
6.6	10.7	9.99	9.37	8.79	8.24	7.72	7.24	6.79	6.36
6.7	10.5	9.81	9.20	8.62	8.08	7.58	7.11	6.66	6.25
6.8	10.2	9.58	8.98	8.42	7.90	7.40	6.94	6.51	6.10
6.9	9.93	9.31	8.73	8.19	7.68	7.20	6.75	6.33	5.93
7.0	9.60	9.00	8.43	7.91	7.41	6.95	6.52	6.11	5.73
7.1	9.20	8.63	8.09	7.58	7.11	6.67	6.25	5.86	5.49
7.2	8.75	8.20	7.69	7.21	6.76	6.34	5.94	5.57	5.22
7.3	8.24	7.73	7.25	6.79	6.37	5.97	5.60	5.25	4.92
7.4	7.69	7.21	6.76	6.33	5.94	5.57	5.22	4.89	4.59
7.5	7.09	6.64	6.23	5.84	5.48	5.13	4.81	4.51	4.23
7.6	6.46	6.05	5.67	5.32	4.99	4.68	4.38	4.11	3.85
7.7	5.81	5.45	5.11	4.79	4.49	4.21	3.95	3.70	3.47
7.8	5.17	4.84	4.54	4.26	3.99	3.74	3.51	3.29	3.09
7.9	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89	2.71
8.0	3.95	3.70	3.47	3.26	3.05	2.86	2.68	2.52	2.36
8.1	3.41	3.19	2.99	2.81	2.63	2.47	2.31	2.17	2.03
8.2	2.91	2.73	2.56	2.40	2.25	2.11	1.98	1.85	1.74
8.3	2.47	2.32	2.18	2.04	1.91	1.79	1.68	1.58	1.48
8.4	2.09	1.96	1.84	1.73	1.62	1.52	1.42	1.33	1.25
8.5	1.77	1.66	1.55	1.46	1.37	1.28	1.20	1.13	1.06
8.6	1.49	1.40	1.31	1.23	1.15	1.08	1.01	0.951	0.892
8.7	1.26	1.18	1.11	1.04	0.976	0.915	0.858	0.805	0.754
8.8	1.07	1.01	0.944	0.885	0.829	0.778	0.729	0.684	0.641
8.9	0.917	0.86	0.806	0.756	0.709	0.664	0.623	0.584	0.548
9.0	0.790	0.740	0.694	0.651	0.610	0.572	0.536	0.503	0.471

* At 15 °C and above, the 30-day average objective for waters where ELS are absent ~~not designated SPWN~~ is the same as that for waters where ELS are present ~~designated SPWN~~.

Reference: U.S. EPA 1999 Update of Ambient Water Quality Criteria for Ammonia²

² For freshwaters ~~where ELS are absent~~ ~~not designated SPWN~~, the thirty-day average concentration of total ammonia as nitrogen (in mg N/L) shall not exceed the values described by the following equation.

$$\text{30-day Average Concentration} = \left(\frac{0.0577}{1 + 10^{7.688 - pH}} + \frac{2.487}{1 + 10^{pH - 7.688}} \right) * 1.45 * 10^{0.028 * (25 - \text{MAX}(T, 7))}$$

Where T = temperature expressed in °C.

In addition, for freshwaters, the highest four-day average within the 30-day period shall not exceed 2.5 times the 30-day average objective as calculated above.

December 8, 2003

IMPLEMENTATION

Implementation Provisions for the Application of Ammonia Objectives to Inland Surface Waters in the Los Angeles Region

3. Selection of 30-day Average Objective – Early Life Stage (ELS) Provision

~~Water bodies with a Basin Plan designation of “SPWN” support high quality aquatic habitats suitable for reproduction and early development of fish and, therefore, these water bodies are designated as ELS present waters. Early Life Stages are assumed present year-round unless a site-specific study is conducted which justifies a seasonal provision. The Basin Plan Amendment process must be followed to develop a seasonal beneficial use designation. For purposes of implementing the ELS provision, all surface water bodies are placed into two classes. The ELS provision is tailored to each class of water bodies. (The two water body classes are described below.) The list of specific water bodies in each class is provided in Table 3-X.~~

Water Body Class	Early Life Stage (ELS) Present Period
<u>Class I</u>	<u>Year-round</u>
<u>Class II</u>	<u>March 1 through November 30</u>

Re-assignment of water bodies to either Class I or Class II may be allowed provided that a water body specific assessment is conducted to justify re-assignment. Re-assignment of water bodies must be approved through the Basin Plan Amendment process.³ Where there is an effort to re-assign a water body to Class I or II due to the presence or absence of a threatened or endangered species, site- specific information on the species must be presented.⁴

4. Existence of Threatened or Endangered Species

Where the Regional Board determines that endangered or threatened species in the Los Angeles Region are more sensitive to a pollutant than the species upon which the objectives are based, more stringent, site-specific modifications of the objectives shall

³ To justify re-assignment of a water body to either Class I or Class II, information regarding fish species distributions, spawning periods, nursery periods and the duration of early life stages found in the water body must be presented. Expert opinions from fisheries biologists and other scientists must be considered, and where it can be obtained, the consensus opinion from a diverse body of experts should be heavily relied upon. The record should clearly explain all the factors and information considered in arriving at the determination and must be adequate to withstand public scrutiny and legal review.

⁴ To establish the need for a re-assignment of a waterbody from Class I to II or vice versa, based on the existence or absence of a threatened or endangered species, information regarding fish species distributions, spawning periods, nursery periods and the duration of early life stages found in the water body must be presented. Expert opinions from fisheries biologists and other scientists must be considered, and where it can be obtained, the consensus opinion from a diverse body of experts should be heavily relied upon. The record should clearly explain all the factors and information considered in arriving at the determination and must be adequate to withstand public scrutiny and legal review.

be performed using U.S. EPA approved methods.⁵ Temperature and pH must be adjusted to match the conditions used to calculate the objectives. Tests to determine site-specific objectives for threatened and endangered species can be conducted in site water or laboratory water. Where there is an effort to re-assign a water body to Class I or II due to the presence or absence of a threatened or endangered species, site specific information on the species must be presented.

Table 3-X – Classification of Water Bodies for Implementation of the ELS Provision

Class I⁶	Class II⁷
All water bodies not listed in Class II.	Arroyo Las Posas
	Arroyo Conejo
	Conejo Creek
	Arroyo Simi
	San Jose Creek
	Coyote Creek
	Dry Canyon Creek
	Burbank Western Wash

⁵ U.S. EPA. 1985. "Guidance for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and their Uses". U.S. EPA. 1994. "Water Quality Standards Handbook, Second Edition", Chapter 3, Section 3.7.4 "The Recalculation Procedure".

⁶ Early Life Stage (ELS) Present period is year-round.

⁷ Early Life Stage (ELS) Present period is March 1 through November 30.